



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,648	10/17/2003	Tadaaki Suda	P23966	9807
7055	7590	12/30/2005	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			UNELUS, ERNEST	
			ART UNIT	PAPER NUMBER
			2828	
DATE MAILED: 12/30/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

sf

Office Action Summary	Application No.	Applicant(s)	
	10/686,648	SUDA, TADAAKI	
	Examiner	Art Unit	
	Ernest Unelus	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>01/22/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 11, and 13 are rejected under 35 U.S.C. 103(a) as being by unpatentable over Yoshikawa et al. (US pat. 5,163,063) in view of Arika (US pat. 5,418,806).

With respect to claim 1, Yoshikawa discloses a semiconductor laser that emits a laser beam (see col. 3, lines 48-50 and fig. 1); a laser power detector that detects laser beam power of said semiconductor laser (1b); a laser driving circuit (see col. 3, line 46-47), which assumingly is being driving by a driver, compares the reference voltage generated by said reference voltage generator and the laser beam power detected by said laser power detector to control a driving current supplied to said semiconductor laser for emitting the laser beam (see col. 3, lines 57-64 and col. 4, lines 12-17); an abnormal condition detector (circuit 104) that detects the laser power control signal received by said reference voltage generator and stops said laser driver from operating when the detected laser power control signal differs from a predetermined signal (see col. 4, lines 4-11). Yoshikawa also discloses a reference voltage (col. 4, lines 66-67).

However, Yoshikawa fails to specifically disclose a reference voltage generator that generates reference voltage for controlling the laser beam power of said semiconductor laser in accordance with a laser power control signal provided from an external device. A reference voltage generator that generates reference voltage for controlling the laser beam power of said semiconductor laser in accordance with a laser power control signal provided from an external device is well taught by Arika (fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to generate voltage to the device, as indicated by Arika (abstract).

With respect to claims 3 and 13, Yoshikawa discloses wherein said abnormal condition detector outputs a laser driver disable signal to said laser driver to stop operation thereof when said input terminal remains at the first voltage level and the laser power control signal inputted thereto has a second voltage level different from the first voltage level (see col. 4, lines 4-11). However, Yoshikawa fails to specifically disclose an input terminal of said reference voltage generator is kept at a first voltage level when no laser power control signal is provided thereto. An input terminal of said reference voltage generator is kept at a first voltage level when no laser power control signal is provided thereto is well taught by Arika (col. 1, lines 32-36 and fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to generate voltage to the device, as indicated by Arika (abstract).

With respect to claim 4, Yoshikawa and Arika disclose everything as claimed above. In addition, Yoshikawa discloses wherein the first voltage level is a high voltage and the second voltage level is a low voltage lower than the first voltage level (see col. 5, lines 26-27).

With respect to claim 11, Yoshikawa and Arika disclose everything as claimed above. In addition, Yoshikawa discloses a laser source that emits a laser beam to be scanned on an object (see col. 2, line 16); a connector having at least one input terminal at connectable to an external device for receiving a control signal (see fig. 1); a laser source controller (102) that controls power of the laser beam emitted from said laser source in accordance with the control signal received through said input terminal (see fig. 1 and see col. 3, lines 61-64); and a detector (104) that examines the connection between said input terminal and the external device and disables said laser source from emitting the laser beam when a poor connection between said Input terminal and the external device is detected (see col. 4, lines 4-11).

Claims 2, 12, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (US pat. 5,163,063) in view of Arika (US pat. 5,418,806), and further in view of Takesue (US pub. 2005/0093969).

With respect to claims 2 and 12, Yoshikawa and Arika disclose everything as claimed above, including, laser scanning wherein said the driving current of said

Art Unit: 2828

semiconductor laser is adjust to correspond to the laser power control signal (see Yoshikawa, col. 6, lines 14-19). Yoshikawa and Arika fail to specifically disclose a manually operable adjuster. A manually operable adjuster is well taught by Takesue (see paragraph 0177). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to correct a phase error of the light, as indicated by Takesue (see paragraph 0175).

With respect to claim 19, Yoshikawa and Arika everything claimed above, including, a laser source that emits a laser beam to be scanned on an object (see Yoshikawa, col. 2, line 16); an input terminal connectable to an external device for receiving a control signal (see fig. 1); a laser source controller (102) that controls power of the laser beam emitted from laser source in accordance with the control signal received through said input terminal (see fig. 1 and see col. 3, lines 61-64); and a detector (104) that examines the connection between said input terminal and the external device and disables said laser source from emitting the laser beam when a poor connection between said Input terminal and the external device is detected (see col. 4, lines 4-11). Yoshikawa and Arika fail to specifically disclose an adjuster. An adjuster is well taught by Takesue (see paragraph 0177). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to correct a phase error of the light, as indicated by Takesue (see paragraph 0175).

With respect to claim 20, Yoshikawa, Arika, and Takesue disclose everything as claimed above. In addition, Yoshikawa discloses an input terminal is kept at a first voltage level when no laser power control signal is provided thereto (see fig. 1), and wherein said abnormal condition detector outputs a laser driver disable signal to said laser driver to stop operation thereof when said input terminal remains at the first voltage level and the laser power control signal inputted thereto has a second voltage level different from the first voltage level (see col. 4, lines 4-11).

Claims 5-8 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (US pat. 5,163,063) in view of Arika (US pat. 5,418,806) and further in view of Suda (US pat. 6,566,641).

With respect to claims 5 and 14, Yoshikawa and Arika disclose everything as claimed above, including, an input terminal of said reference voltage generator is kept at a first voltage level when no laser power control signal is provided thereto (see Arika, col. 1, lines 32-36 and fig. 3), and wherein said abnormal condition detector outputs a laser driver disable signal to said laser driver to stop operation thereof when said input terminal remains at the first voltage level and the laser power control signal inputted thereto has a second voltage level different from the first voltage level (see Yoshikawa, col. 4, lines 4-11). Yoshikawa and Arika fail to specifically disclose a reference voltage generator having a plurality of input terminals or connectors. A reference voltage generator having a plurality of input terminals and connectors is well taught by Suda

Art Unit: 2828

(see col. 6, line 22 and fig. 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to include devices such as a sample-and-hold circuit and a saw-tooth wave generator. These two devices will work together to maximize voltage, as indicated by Suda (see Suda, col. 6, lines 34-50).

With respect to claim 6, Yoshikawa and Arika disclose everything as claimed above without specifically disclosing the laser power control signal is a parallel digital signal. However, the laser power control signal being a parallel digital signal is well taught by Suda (see col. 2, lines 46-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to be able to convert digital to analog signal, as indicated by Suda (see col. 2, lines 46-49).

With respect to claims 7 and 15, Yoshikawa, Arika, and Suda disclose everything as claim above. In addition, Yoshikawa discloses wherein said abnormal condition detector (104) includes an abnormal condition signal generator (col. 4, lines 27-28) that generates an abnormal condition signal when at least one of said input terminals remains at the first voltage level and the laser power control signal inputted thereto has the second voltage level (see col. 4, lines 4-9), and a laser driving circuit controller (102) that outputs the laser driver disable signal to said laser driver when said abnormal condition signal generator outputs the abnormal condition signal, and wherein said

Art Unit: 2828

disable signal disables said laser source from emitting the laser beam (see col. 4, lines 9-11).

With respect to claims 8 and 16, Yoshikawa, Arika, and Suda disclose everything as claim above. In addition, Arika discloses a reference voltage generator and Yoshikawa discloses wherein said abnormal condition signal generator includes an AND gate having inputs whose number is not less than a number of said input terminals of said reference voltage generator, and wherein said inputs of said AND gate is connected with respective ones of said input terminals (see Yoshikawa, col. 5, lines 33-40 and fig. 2).

Claims 9, 10, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al. (US pat. 5,163,063) in view of Arika (US pat. 5,418,806), Suda (US pat. 6,566,641), and further in view of Call et al. (US pat. 5,309,461).

With respect to claims 9 and 17, Yoshikawa, Arika, and Suda disclose everything as claim above, including an abnormal condition signal generator. Yoshikawa, Arika, and Suda fail to specifically disclose a plurality of open collector inverters. A plurality of open collector inverters is well taught by Call (see fig. 5 and col. 5, lines 5-6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the references above to produce a high output, as indicated by Call (see col. 5, line 6).

With respect to claims 10 and 18, Yoshikawa, Arika, Suda, and Call disclose everything as claimed above. In addition, Yoshikawa discloses wherein said laser driving circuit controller is a flip flop that changes a state of an output thereof to generate the laser driver disable signal (see col. 5, lines 44-45).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Grodevant (US pat. 5,666,045) discloses a laser driver and control system which provide protection for a laser without specifically disclosing a manually operable adjuster.

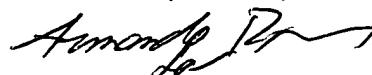
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is 571-272-8596. The examiner can normally be reached on 9:00am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

Art Unit: 2828

information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Minsun Harvey
Supervisor
Art Unit 2828

EU

